

CTDs COMMON CAUSES

Let's first identify some of the causes of CTDs (Cumulative Trauma Disorders):

1. Repetitive Motion:

- A. Anything that **repeats** — typing, using a screwdriver or hammer, lifting, etc.
- B. Not limited to work-related motions, **hobbies** may also create problems — gardening, housecleaning, yard work, playing a musical instrument.
- C. Office work used to be very manual with changing paper or carbons, correcting mistakes, etc., but now with computers, everything is more automated and centralized. (Suggestion: **Take microbreaks.**)

2. Positions and Postures

Poor postures and awkward positions can contribute to CTDs. For example:

- A. Holding the phone with your shoulder.
- B. Turning your body in the chair without turning the whole chair.
- C. Slumped sitting (which decreases the circulation to our extremities and can slow the healing of wrist or hand injuries.
- D. Awkward working positions that are likely found in physical jobs (mechanic, route salesman, painter) or just working around the house.

3. Force:

- A. Holding a pen or tool with a pinch grip.
- B. Filling out carbonless forms all day.
- C. Holding neck in a downward position — a head held 2-3 inches forward increases the stress on the neck muscles threefold, making 10-12 pounds (average weight of a head) seem more like 30-36 pounds.
- D. Sitting with low back in a bent-forward position without lumbar support.

- E. Adding direct pressure at wrist — tight clothing, watch band, resting arms on edge of desk.
- F. Using mouse improperly by resting wrist on edge of desk or applying excessive pressure with fingers, or extending the arm past the neutral 90° position.
- 4. Vibration — from certain tools and machinery.
- 5. Cold temperatures — causes stiffness and decreased circulation.

**Other causes of Carpel Tunnel Syndrome** – diabetes, pregnancy, arthritis, tumors, hypothyroidism, and congestive heart failure.

TREATMENT

WHAT TO DO WHEN IT HURTS:

- Rest** — eliminate or minimize the painful activities.
- Ice** — apply for 10-15 minutes several times daily.
- Compression** — wrap with a bandage or splint.
- Elevation** — raise above heart level to decrease swelling.

Rest and immobilization are sometimes necessary, but it can be overdone! Stiffness and loss of range of motion can ultimately cause more problems! Try to move as often as possible through a **pain-free** range.

There are many different types of splints. The best type is custom fitted to your wrist and hand by a physician, athletic trainer or therapist. The best time to wear a splint is while sleeping. It should hold the wrist in a neutral or 0-10 degree position.

**Surgery should be the last resort, not THE ANSWER!** Even after surgery there are rehabilitation exercises to be done, and ergonomic changes still need to be considered to prevent further problems.

PREVENTION

Now lets discuss ways to prevent CTDs...Work with the body in **NEUTRAL POSITIONS:**

- 1. **Arms** — let them rest naturally at your side — work no higher than shoulder height, keep arms close to the body, keep the elbows at a 90 degree angle.
- 2. **Wrist** — forearms and hands should be kept in the same plane.
- 3. **Spine** — maintain the natural curves in the neck, between the shoulder blades and in the low back.



WORK STATION DESIGN:

- 1. Define your "reach space" and work within it — keep items used frequently within arms reach.
- 2. Chair height — adjust to allow for 90 degrees at elbows with hands on desk or keyboard.
- 3. Foot rest, if necessary, to raise the knees slightly higher than the hips.
- 4. Lumbar support — in most chairs it is already there, but make sure it is adjusted to fit against the curve of your low back.
- 5. Use wrist rests or adjustable tilt keyboard stand.
- 6. Screen height — should be at or slightly below eye level.
- 7. Distance to screen — 18-20" from your face is ideal; 13-23" is acceptable.
- 8. Don't lay material flat on the desk, use a copy holder —
  - A. Positioned next to the monitor.
  - B. Same height as screen.
  - C. Same distance away from eyes as the screen.

VISUAL COMFORT:

- 1. Blink often — to decrease dryness of the eyes.
- 2. Take short breaks (15-20 seconds).
- 3. Refocus away from the screen occasionally.
- 4. Have regular eye exams — have lenses adjusted for screen distance.
- 5. Lighting — adjust for glare (usually caused by overhead or task lighting, a window, or even just reflections off light clothing, white paper or walls).
- A. Adjust blinds in the windows.
- B. Adjust task lighting to prevent glare on your screen.
- C. Use anti-glare screen.



WORK HABITS:

A body needs to move! The best way to relieve stress and strain — **EXERCISE!** Think of yourself as an industrial athlete.

Injuries seldom result from a single event, but an accumulation of stressors.

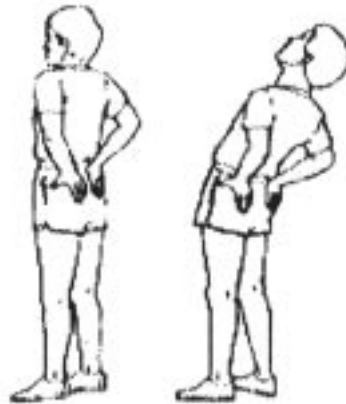
- 1. Poor posture.
- 2. Faulty body mechanics.
- 3. Stressful working and living habits.
- 4. Loss of flexibility.
- 5. Decline in general physical fitness.

P R E V E N T I O N   I S   T H E   K E Y !

**PERFORM EACH STRETCH FOR 10 SECONDS**  
**SEVERAL TIMES**  
**THROUGHOUT THE WORKDAY.**

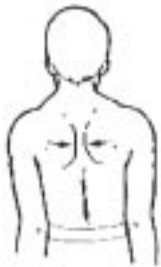
**Lower Back**

Place both hands against low back. Slowly lean backward.



**Upper Back**

Clasp hands together behind back with arms extended. Gently pull shoulder blades together.



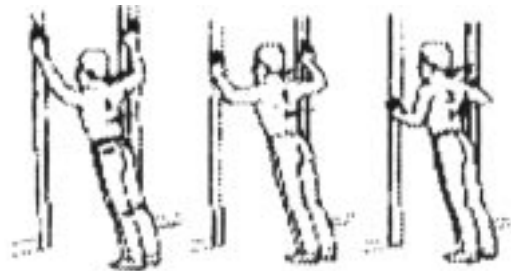
**Wrist**

Grasp one hand and slowly bend wrist until a stretch is felt. Relax. Then stretch as far as you can in the opposite direction. Be sure to keep elbow straight. Repeat with the other hand.



**Doorway Stretch**

Place hands at either side of doorway. Step forward, keeping body weight on your feet not your arms. Alternate high, middle, and low to stretch all areas of the shoulder/chest.



**Shoulders**

Shrug shoulders slowly up, back and around.



**Neck**

Assume position shown. Turn head to the opposite side looking down toward the hip. Increase stretch as needed by pulling on head.



**IN THE OFFICE AND AT HOME**

We have become much more automated at home and in the office. We sit or stand for long periods without a break. Times are such that many people are doing their own lawn and garden maintenance, as well as home improvements and repairs. In completing these tasks, we find ourselves in awkward positions many times doing repetitive tasks. All of this can cause overuse injuries to our bodies. CUMULATIVE TRAUMA DISORDERS (CTDs), also called Repetitive Motion Injuries, involve problems with the upper body and back as a result of overuse or improper technique.

Our body is like anything mechanical with many different parts — over time and with overuse, it can wear down.

It wears down more quickly with ABUSE — if you don't treat machines properly, what happens? We need to practice preventative maintenance on our bodies just like we do on our machines.

In some cases of overuse, cumulative trauma disorders (CTDs) can occur. We must identify stressors or causes; and work to prevent or, at least, control them.

Three MAJOR risk factors increase the incidence of CTDs:

1. repetitive motion.
2. position/posture.
3. force.

This brochure will provide information about CTDs, the causes, prevention and treatments.

The exercises included in this program are intended for healthy individuals who have no exercise limitations. Whenever beginning any exercise program, remember to consult your physician first. If you have had previous back, neck or upper extremity problems, consult your physician to determine any limitations you may have.

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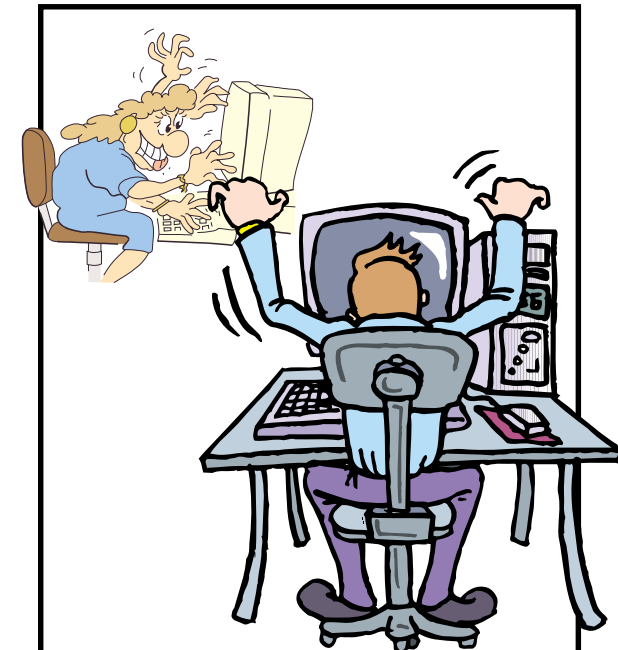
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**In the Office**



**...Preventing  
Cumulative  
Trauma  
Disorders**